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Research article

Intention and behavior towards green consumption among low-income households

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ABSTRACT

In order to address the issues of climate change through wise management of resources and environmental conservation, this study examined the intention and behavior towards green consumption among low-income households. This study was a cross-sectional that relied on 380 low-income household respondents who lived in coastal areas of Peninsular Malaysia. The findings revealed a positive effect of eco-literacy and self-efficacy on attitude towards green products. Subsequently, the findings also ascertained a positive effect of attitude and perceived behavioral control on intention and consumption of green products. In addition, both scholars and policymakers can rely on these findings to increase the intention and behavior towards the consumption of green products in order to reduce the environmental vulnerability to the coastal communities. Therefore, responsible organizations should implement programs and policies that minimize the adverse effects of climate change through resource management and environmental conservation by promoting the use of green products among Malaysians.

1. Introduction

There has been a strong interest in understanding the negative consequences of climate change for the economy and society. Recent researchers pointed out that neglecting the significance of environmental sustainability is likely to weaken the society that relies on natural resources to generate revenue (Jiang and Zheng, 2017). In fact, Stern (2007) claimed that climate change is one of the most influential factors of market failure. Climate change could result in a loss of 5–20 percent of gross domestic products (GDP), if there was no effective precautionary measure taken to protect the environment. This finding was consistent with previous studies (Weitzman, 2007; Nordhaus, 2007) which revealed that environment protection such as reduction in carbon emission should be prioritized to sustain a country's socio-economic. Hence, the issues of global climate change have been a challenge to economists and policy makers to identify countermeasures.

To tackle the negative effects of different climate patterns and environmental degradation, one of the solutions is to introduce green products that can protect the environment (Pickett-Baker and Ozaki, 2007). Normally, conventional products are non-biodegradable and unrecyclable. These products contain chemical substances that gradually harm the environment. However, many green products have difficulties in targeting the mass market although they have existed in the market for a long time. In a nutshell, consumer ignorance has been as a hindrance to promoting green consumerism. Lim et al. (2013) found that the Malaysian' personal welfare are more important than the environmental well-being. They stated that the environmentalist should be responsible for managing environmental concerns.

Undoubtedly, many countries have promoted environmentalism. Although numerous campaigns have been launched to preserve the environment, the concept of being green is novel for many citizens and their perception of eco-friendly products is low (Rezai et al., 2013). Thus, consumers have misconception about “green” due to insufficient understanding and information. Besides, Ginsberg and Bloom (2004) mentioned that eco-friendly products have been underrated by firms because they think that the products will not boost consumer demand since they are not necessity for the consumers. The majority of the consumers are not well informed about the benefits of green products

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that contribute to subsequent purchase (Nagaraju and Thejaswini, 2016).

However, addressing the adverse effects of climate change demands the participation of political decision makers and the general public (Sandvik, 2008). Although packaging waste is the responsibility of the industry and the local governments are generally in-charge of waste management (Cruz et al., 2014), the role of consumers in protecting the environment is equally crucial. A necessary pre-condition for decision makers to take action is based on the assumption that the general public does reckon the adverse impacts of climatic change issues (Sandvik, 2008). Despite of the effort from both government and non-government organizations in promoting green consumption, as well as the diffusion of green products that can be traced since past four decades; the market for green products has yet to attain the mass-market status (Olive, 2007). As such, enhanced understanding regarding the present state of green consumption, as well as the effects of environmental literacy, attitude, subjective norms, and perceived behavioral control, is crucial to encourage mass consumption of green products among those from the low-income households.

Therefore, this study examined the intentions and behaviors of green consumption among low-income households in coastal Peninsular Malaysia. According to the Department of Statistics (2016), the bottom 40% of the Malaysian populations are categorized under low-income group, which is relatively higher in coastal areas as compared to cities. Moreover, the median monthly household income growth for low-income group in Malaysia was 6.6% in 2006 (Department of Statistics, 2016). Specifically, this study was concerned about whether consumers spent their disposable incomes on conventional or green products. Besides, it was also crucial to look into the effect of psychological factors on purchase decision in order to enhance the green criteria. Therefore, this study intended to examine the factors that affected intention and behavior towards the use of green products among low-income households in coastal Peninsular Malaysia.

2. Literature review

2.1. Theory of planned behavior

Theory of Planned Behavior (TPB) discusses about the various situation-specific cognition that influence an individual's initial intention to behave specifically (Ajzen, 1991). Generally speaking, the formation in an individuals' decision making is guided by three distinctive factors, which are the combination of attitude, subjective norms as well as perceived behavior control. This social-psychological framework has been commonly applied by other scholars. The positive and negative beliefs are influential on the intention and behavior in certain actions, which provide a favorable direction to strengthen consumer commitment (Yadav and Pathak, 2017). The TPB hypothesizes that one's behavior could be determined by behavioral intentions that can be predicted by certain socio–cognitive factors, such as attitudes, subjective norms, and perceived behavior control (Ajzen, 1991). According to Liobikienė et al. (2016), TPB was used to measure the degree of green consumerism in European Union countries and facilitate policy implementation. For instance, Denmark and Austria supplied more eco-friendly products for consumers to choose. On contrary, Sweden, Italy and Czech Republic required government intervention through subsidy in green products that allowed their consumers, who were sensitive to price, to afford green products.

In response to the above discussion, TPB is applied to explain how and what kind of beliefs helps the low-income households to make green purchase. Several studies used this theory to understand the reasons that induce the user's intentions to purchase econ-friendly products (Bamberg, 2003; Rashid, 2009; Whitmarsh and O'Neill, 2010; Kanchanapibul et al., 2014; Maichum et al., 2016). This theory is expected to assist green markets in exploring different perceptions of and behaviors towards green consumption among low-income households in Malaysia. Subsequently, it encourages more strategic planning to ensure the sustainability of the business lifecycle with minimal damage to the environment.

2.2. Attitude towards green products

Attitude is considered as one of the important factors participants can evaluate in terms of the benefit of purchasing green products. Ajzen (1985) postulated that participants are more likely to behave when they think that participating in a certain act will be advantageous for them. Since then, the individuals' behaviors can be evaluated based on the participants' attitudes. With the studied context, attitude towards green products is perceived as the degree to which performance of green purchase behavior is negatively or positively valued by individuals (Chen and Deng, 2016). Previously, attitude has been studied as an independent variable to predict behaviors. Green consumption studies contended that consumers are more willing to learn about eco-friendly products when they hold positive attitudes toward these products (Paul et al., 2016; Sharma and Dayal, 2016). Kim and Chung (2011) stressed that when consumers had positive mindset of green purchasing, they had higher intention to use green products. However, Vermeir and Verbeke's (2006) study was more diverse as the consumers had opposing intentions and attitudes toward the use of sustainable products. In connection with the current study, Tanner and Kast (2003) stated that positive attitudes toward environment can increase natural food consumption. This finding was confirmed by Taylor et al. (2010) in wine sector. Based on the basis of theoretical and empirical evidence, attitude is an important predictor of purchase intention. Hence, it proposes a directional relationship between attitude and intention to purchase green products.

2.3. Factors effecting attitude towards green products

Eco-Literacy can be considered a determinant of intention to consume green products. In general, knowledge reflects the characteristic that influences all phases in one's decision-making process, which may form either positive or negative attitudes towards a certain behavior (Mei et al., 2012). This term is defined as any individuals who are concerned about the climate change and willing to overcome environmental issues. This aspect is crucial to raise the attention from the communities who are looking for green information. Paul et al. (2016) proved that eco-literacy of Indian consumers had a positive impact on their attitude toward green consumption. In other words, their understanding about the climate change positively changed their purchasing behavior. Based on the above discussion, consumers who are eco-literate have positive attitude toward green consumer behavior (Zhao and Zhong, 2015; Tseng and Hung, 2013).

Self-Efficacy - the second determinant of an individual's attitude is self-efficacy. Normally, consumers are capable of making better adjustment to prevent environmental degradation. The theory suggests that self-efficacy beliefs (perceived ability) can affect one's thoughts and emotional responses (Bandura, 1977; Ajzen and Fishbein, 1977). Meanwhile, Durndell and Haag (2002) discovered higher computer self-efficacy correlated to higher positive attitudes towards Internet, which led to longer use of the Internet. Self-efficacy has been proven to determine behavioral intention significantly (Giles et al., 2004) particularly in the context of pro-environmental behavior (Tabernero and Hernández, 2011). Sharma and Dayal (2016) indicated that consumers' self-efficacy can influence their perception of eco-friendly products. Their climatic living conditions were also taken into consideration when they made their purchase. They believed that their own initiatives were likely to make significant differences to the environment. The social and environmental values the consumers had would foster them to use green products (Vermeir and Verbeke, 2006). Joshi and Rahman (2015) posited that products with natural and societal functions can translate consumers' positive attitudes into green consumption. The

products usage helped the consumers gain more knowledge about environment protection to address existing environmental problems. Moreover, consumers were concerned about their purchase decision when the awareness of environmental protection was on the rise, thereby positively influencing their attitude toward eco-friendly products. Yahya et al. (2015) suggested that the consumers' ability to adjust can be refined if necessary instruments are distributed such as consistent dispersed of campaign or advertisement that promote effective teaching about environmental knowledge.

2.4. Mediating effect of attitude towards green products

Paul et al. (2016) considered attitude as a mediator to examine the relationship between environmental concern and purchase intention. Their findings stated that the mediating effect was stronger when environmental concern was found to have impact on consumer intention. Even though Sharma and Dayal (2016) did not examine the relationship between intention towards green purchasing and actual effort to purchase, the intention towards green consumerism was mediated by the consumer's attitude as a result of self-efficacy. Besides that, previous studies also looked into different determinants of consumer attitude. For instance, Whitmarsh and O'Neill (2010) examined pro-environmental behavior related to transportation, domestic utilities, shopping choices, and waste treatment to identify the attitude of the consumers toward green living. Also, Ng and Law (2015) investigated the effect of perceived environmental responsibility, environmental concern, and perceived consumer effectiveness on the consumers' attitude towards green products usage. According to Yeoh and Paladino (2008), attitude was found to partially mediate the relationship between environmental knowledge and green purchase behavior. A similar study was conducted by Paladino and Baggiere (2007), which found that attitudes fully mediated the relationship between environmental knowledge and green purchase behavior. Saunders (2003) therefore claimed that consumers have the responsibility to prevent environmental deterioration in spite of what policymakers have done. In fact, the stimulation of environmental knowledge about green consumerism has been a challenging move. As this study hypothesized a positive association between eco-literacy and self-efficacy on attitude towards green products, and its effect on intention towards green products; this study investigated the mediating effect of attitude towards green products. The dimensions of eco-literacy and self-efficacy were included in the TPB to increase the strength of the model (see Beck and Ajzen, 1991), which are expected to have an indirect effect on intention, mediated by the component of the original model (Tonglet et al., 2004). Hence, this study proposes that attitude towards green products mediated the relationship between both eco-literacy and self-efficacy and the intention to purchase these products.

2.5. Subjective norms

Both descriptive and injunctive normative beliefs are essential for determining subjective norms (Ajzen, 2015). Normally, the actions or reactions from families, friends, consultants or any professionals show paramount importance in making own decision. This situation is known as descriptive normative beliefs (Davies et al., 2002). On the contrary, the approval, advice or suggestions from the referents can interfere or change an individual's behavioral cognitions. This scenario is known as injunctive normative beliefs (Arvola et al., 2008). Subjective norm is the opinions of others that are influential on an individual's decision making. If he or she believes that people who are significant to him or her approve the behavior, they are likely to perform the behavior, and vice versa (Hee, 2000). Therefore, subjective norms are expected to bring implication for the intention to purchase green products. As a result, the formidable judgment from the referents on these products can influence the consumers' intention to purchase green products. Based on these justifications, Kim and Chung (2011) found that support and positive comments about organic skin care products can encourage consumption interest in these products. Undeniably, social influence is important for continuous green consumption (Sharaf et al., 2015). Bamberg (2003) also showed that students who were slightly concerned about the environment were affected by social norm cognitions. Conversely, Paul et al. (2016) found that subjective norm did not influence the consumers' intention to make green choices.

2.6. Perceived behavioral control

When participants believe that they have the ability to act or decide with a given behavior, it is known as perceived behavioral control (PBC). PBC has been examined as a main determinant of behavioral intention (López-Mosquera et al., 2014; Chen and Tung, 2014). PBC measures an individual's opportunity and ability to perform a behavior. It determines his or her beliefs about the effect of both situational and internal factors on performing behavior (Klockner, 2013). Ajzen (2015) suggested that PBC can hinder the participants from performing a behavior or facilitate the participants to perform a behavior when obstacles or resources are available, respectively. These explicit assumptions compromise the horizons and fortune that are required to act, the experiences in order to behave certain matter, and other specific requirements to conduct the individuals' desired behaviors. Whether low-income households can own a green product depend on their consumption that changes the environment (Haytko and Matulich, 2008). Joshi and Rahman (2015) indicated that people with PBC have positive intention to become a potential consumer of green products. Bamberg (2003) pointed out that students who are sensitive to the environmental quality are eager to learn about eco-friendly products and share their details with others through brochures. Besides, the strong belief in green consumption play a crucial role in order for the consumers to fulfill their environmental responsibilities (Rezai et al., 2013). Similarly, Laroche et al. (2001) indicated that consumers are aware of the environmental responsibility through green products consumption. Therefore, PBC is expected to develop the intention to purchase green product.

2.7. Intention towards green

When the participants have a resolution to achieve their goals, they will take action to accomplish a particular motive. Without that motive, no further action can be performed. Individuals with intentions to start a business are better prepared for the entrepreneurial process than people without intention (Devonish et al., 2010). The relationships between intention and behavior in green consumerism have been investigated in details. For example, Few studies have revealed that there is positive relationship between the intention to purchase organic products and behavior towards organic products purchase (Tarkiainen and Sundqvist, 2005; Nguyen et al., 2016; Kumar et al., 2017). Bamberg (2003) stated that students' environmentally-related behavior enhances when they intend to protect the environment. Kanchanapibul et al. (2014) also posited that younger consumers have greater intention to buy green products. Based on these previous studies, when participants have higher intention to behave in a specific manner, they are likely to perform that manner (Ajzen, 1991).

2.8. Mediating effect of intention towards green business

In general, an individual's intentions are determined by various personal and influential beliefs, thus his or her behaviors can be easily performed. When the effect of subjective norm and attitude on action is affirmative, with considerable perceived control, the individuals intend to conduct the performance (Ajzen, 2015). Many studies confirmed the consumers' salient beliefs are major factor in driving their interest in green products before consumption happened. For instance, Bamberg (2003) examined the environmentally concerned behaviors with the

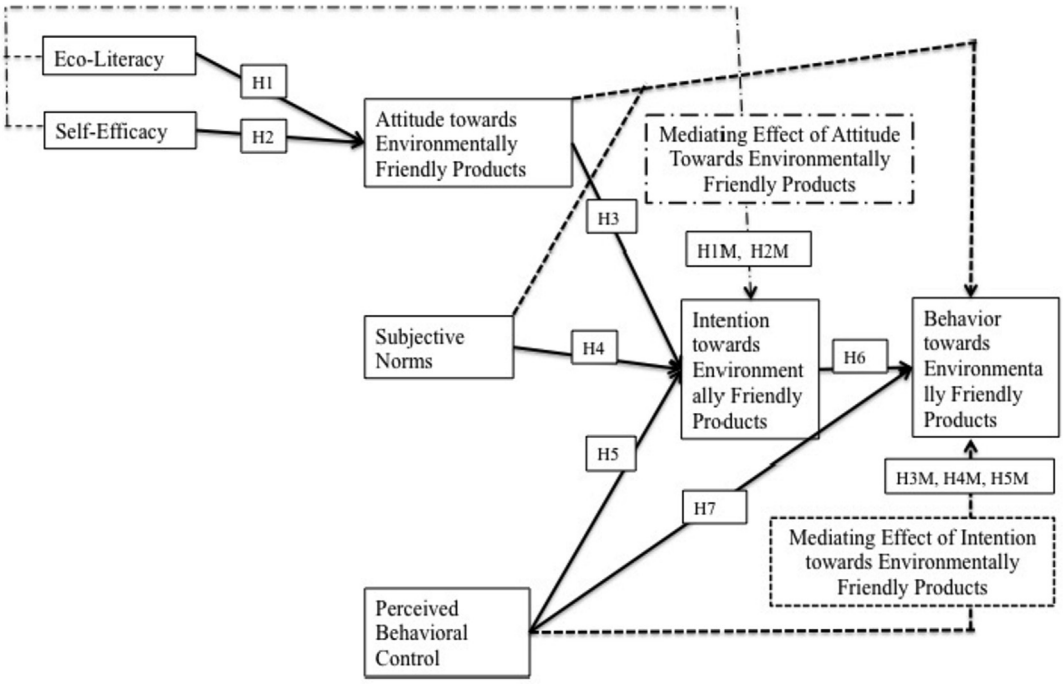

Fig. 1. Research model.

indirect effects of three factors (attitudes, subjective norms, and PBC). The result concluded that students who lacked environmental concern and participated in green activities were influenced by significant others. However, both experience and capability were the main factors of green activity engagement among students with high environmental awareness. Based on the fundamental of TPB model, Tarkiainen and Sundqvist (2005) have investigated on how the three distinctive beliefs affected the purchasing behavior toward organic products. Consumers without pro-environmental behavior require perceived control behavior and favorable attitude to gain relevant cognition and perform this behavior (Ertz et al., 2016). Besides the adoption of the three beliefs (Ajzen, 1991), Joshi and Rahman (2015) extended their study by incorporating habits, emotions, perceived consumer effectiveness, and situational factors to predict green purchasing behavior. Before green consumption is taken place, the intention to purchase green products should be evoked by various attitudinal factors (Hsu et al., 2017). The TPB supports that intention towards green products should completely mediate the effects of constructs that serve as predictors (i.e. attitude towards green products, subjective norms, and perceived behavioral control) on later action, which is, behavior towards green products (Ajzen, 1991). As this study hypothesized a positive association between attitude towards green products, subjective norms, and PBC on intention towards green products; and the effect of intention towards green products to the behavior towards green products; this study investigated the mediating effect of intention towards green products.

2.9. Research model and hypothesis

Under the premises of theory and based on the empirical findings presented above, this study proposes hypothesis as follows:

Hypothesis 1. (H_1)Eco-literacy has a positive effect on attitude towards green products among low-income households in Costal Peninsular Malaysia

Hypothesis 2. (H_2)Self-efficacy has a positive effect on attitude towards green products among low-income households in Costal Peninsular Malaysia

Hypothesis 3. (H_3)Attitude towards green products has a positive effect on intention towards green products among low-income households in Costal Peninsular Malaysia

Hypothesis 4. (H_4)Subjective norms has a positive effect on the intention towards green products among low-income households in Coastal Peninsular Malaysia

Hypothesis 5. (H_5)PBC has a positive effect on the intention towards green products among low-income households in Coastal Peninsular Malaysia

Hypothesis 6. (H_6)PBC has a positive effect on consumption of green products among low-income households in Coastal Peninsular Malaysia

Hypothesis 7. (H_7)Intention towards green products has a positive effect on the consumption of green products among low-income households in Coastal Peninsular Malaysia

Hypothesis 1M. (H_{1M})Attitude towards green products mediates the effect of eco-literacy on the intention towards green products among low-income households in Coastal Peninsular Malaysia

Hypothesis 2M. (H_{2M})Attitude towards green products mediates the effect of environmental concern on the intention towards green products among low-income households in Coastal Peninsular Malaysia

Hypothesis 3M. (H_{3M})Intention towards green products mediates the effect of attitude towards green products on the consumption of green products among low-income households in Coastal Peninsular Malaysia

Hypothesis 4M. (H_{4M})Intention towards green products mediates the effect of subjective norms on the consumption of green products among low-income households in Coastal Peninsular Malaysia

Hypothesis 5M. (H_{5M})Intention towards green products mediates the effect of PBC on the consumption of green products among low-income households in Coastal Peninsular Malaysia

Fig. 1 below presented all the associations' hypothesised and tested in this study.

3. Research methodology

This study adopted a cross-sectional design and collected quantitative data through structured interviews to measure the effect of different variables on intention and behavior towards the consumption of green products among low-income household from coastal Peninsular Malaysia. The cross-sectional design allowed this study to explore the present state of intention and behavior towards green consumption among the low-income households that resided along the Coastal Peninsular Malaysia. The low-income coastal households were selected for this study in order to explore the present state of green consumption intention and behavior among low-income households that live in the most environmentally vulnerable locations. The population of this study was low-income households (net household income below RM2000, noted in the report by the Prime Minister's Department, 2010) from in coastal Peninsular Malaysia. In addition, the Implementation and Coordination Unit of the Prime Minister's Department (ICU-JPM) the database of low-income households with personal particulars. Upon formal request, ICU-JPM provided a list of 500 low-income households in 36 coastal districts from 10 states in Peninsular Malaysia. Through random sampling method, 500 potential respondents were selected from a total of 78,118 low-income households. Before the data collection began, selected households were contacted. Also, the purpose of the survey was explained and interview appointments were made with them. Data collection was carried out from July until August in 2017. Data were gathered by conducting face-to-face structured interview by a group of ten postgraduate (by research) students appointed as graduate research assistants and enumerators. The data were collected after setting appointments with the respondents as they provided both location and time for the interview. As the data collection phase was coming to an end, the researchers had successfully interviewed a total of 380 respondents. As the respondents were selected randomly from the list of 78,118 households, it has been assumed that they represent the population, i.e., low-income households in coastal Peninsular Malaysia. This study also assumes that the questions were comprehensible to the interviewees, as well as the fact that the presence of interviewers had nil influence upon their responses. Among the total 380 respondents, a total of 40 were from Johor (8 - Pontian, 9 - Johor Bharu, 7 - Muar, 7 - Mersing, and 9 - Batu Pahat), 35 were from Pahang (20 - Pekan, and 15 - Rompin), 36 were from Kedah (10 - Kota Setar, 13 - Kuala Muda, and 13 - Yan), 37 were from Kelantan (9 - Bachok, 11 - Kota Bharu, 10 - Pasir Puteh, and 7 - Tumpat), 35 were from Perlis (15 - Kayang, 15 - Kuala Perlis, and 15 - Sanglang), 38 were from Terengganu (6 - Kuala Terengganu, 6 - Setiu, 6 - Kuala Nerus, 8 - Kemaman, 6 - Besut, and 6 - Marang), 39 were from Penang (7 - Seberang Prai Selatan, 8 - Utara, 5 - Tengah, 10 - Timor Laut, and 9 - Barat Daya), 40 were from Selangor (10 - Sabak Bernam, 10 - Kuala Selangor, 10 - Klang, and 10 - Kuala Langat and Sepang), 41 were from Perak (11 - Hilir Perak, 10 - Manjung, 11 - Larut Matang and Selama, and 9 - Kerian), and 39 were from Melaka.

3.1. Sample size

The sample size was calculated using G-Power version 3.1. Based on the power of 0.95 (should be more than 0.80 as required in social and behavioral science research) with an effect size of 0.15, this study needed a sample size of 146 to test the model with six predictors. Furthermore, Reinartz et al. (2009) proposed a minimum sample size of 100 is required when employing PLS-SEM. To minimize possible complications arising from a small sample size, a total of 380 low-income responses were collected.

3.2. Research instrument

The questionnaire was designed using simple and unbiased wording to allow the respondents to understand the questions easily. Questionnaire items were adapted from earlier studies with minor modifications (see Appendix 1, Table A). Items that measured eco-literacy were adopted from Maichum et al. (2016) and Mostafa (2006). Besides, items that measured self-efficacy were adopted from Qader and Zainuddin (2011). To measure attitude towards green products, items were adopted from Ha and Janda (2012) and Maichum et al. (2016). Then, items that measured subjective norms were obtained from Wu and Chen (2014) and Maichum et al. (2016). Next, items that measured PBC were derived from Maichum et al. (2016). After that, items that measured intention towards environmental friendly products were adopted from Ha and Janda (2012) and Afroz et al. (2015). Last but not least, items that measured the consumption of environmental friendly products were adopted from a group of researchers (Walton and Austin, 2011; Sánchez et al., 2015; Osman et al., 2014). Particularly, the dependent variables were asked in a seven-point Likert scale (1–7, from “strongly disagree” to “strongly agree”), while the independent variables were asked in a five-point Likert scale (1–5, from “strongly disagree” to “strongly agree”).

3.3. Common method variance (CMV)

To minimize the effect of CMV, besides constructing the items, this study ‘*informed the respondent that the responses will be evaluate anonymously and there are no right or wrong answers*’ (Podsakoff et al., 2003). As recommended by Podsakoff et al. (2003), this study adopted a five-point Likert scale for independent variables and a seven-point Likert scale for dependent variables. This study also adopted Harman's (1976) one-factor test, in which one-fixed factor is extracted from all principal constructs to explain less than 50% of the variance. The analysis showed that one of the components explained 39.16% of the variance. Furthermore, the correlation with more than 0.9 indicates CMV (Bagozzi et al., 1989). In this study, the relationship between eco-literacy and subjective norms had the strongest correlation with 0.59. In other words, there was minimal CMV.

3.4. Multivariate normality

This study examined multivariate normality using the Web Power. This tool identified Mardia's multivariate skewness, kurtosis coefficients, and *p*-values. The analysis showed that the *p*-value of Mardia's multivariate skewness and kurtosis coefficients was less than 0.05, which confirmed multivariate non-normality.

3.5. Data analysis method

Structural equation modelling-partial least squares (PLS-SEM) is a causal modelling approach which maximizes the explained variance of the dependent latent constructs (Hair et al., 2011). Since this study was exploratory in nature with non-normality issues, variance-based PLS-SEM estimation was used. As recommended by Hair et al. (2013), the analysis of PLS-SEM includes indicator reliability, internal consistency reliability, convergent validity, discriminant validity, average variance extracted (AVE), effect size, path coefficient estimates, and predictive relevance.

4. Summary of findings

4.1. Demographic characteristics

Of 380 respondents, 191 (50.3%) of them were males and the remaining 49.7% were females. In terms of age, 22.9% of the respondents were in the age of 21–30 years, followed by 46.4% of them were in the age of 31–40 years and 51 to 50 years, respectively. The remaining 11% were below 21 or over 60 years old. The majority of the respondents (51.6%) completed their secondary education, 16.8% of them completed their primary education, and 14.2% of them received their

Table 1
Reliability and validity.
Source: Author's data analysis

Variables	No. Items	Mean	SD	CA	DG *rho*	CR	AVE	VIF
EL	4	3.266	1.057	0.978	0.979	0.983	0.937	1.013
SE	4	4.334	0.680	0.954	0.957	0.967	0.879	1.013
ATE	5	4.004	0.737	0.960	0.960	0.970	0.865	1.202
SUN	5	3.104	0.963	0.926	0.965	0.944	0.773	1.114
PBC	6	3.346	0.804	0.969	0.970	0.975	0.866	1.276
IEFP	7	3.576	0.811	0.975	0.976	0.979	0.870	1.449
CEFP	7	4.091	1.218	0.966	0.970	0.972	0.832	–

Note: EL: Eco-Literacy; SE: Self-Efficacy; ATE: Attitude towards Green Products; SUN: Subjective Norms; PBC: Perceived Behavioral Control; IEFP: Intention towards Green Products; CEFP: Consumption of Green Products; SD: Standard Deviation; CA: Cronbach's Alpha; DG *rho* - Dillon-Goldstein's *rho*; CR - Composite Reliability; AVE - Average Variance Extracted; VIF - Variance Inflation Factors.

diploma. Only 7.1% of them were degree holders. The remaining 10.3% never attended school. For the employment status, a total of 374 (98.4%) of the respondents were 'employed' and the rest were unemployed. Moreover, 88.4% of the respondents were involved in entrepreneurial activity whereas 11.1% of them were employed. Only 0.5% of them were not involved in economic activities (see Table B, Appendix 2).

4.2. Reliability and validity

Table 1 presents the descriptive statistics that includes the number of items, as well as the mean and standard deviation values of all the variables. The mean value for eco-literacy was relatively lower than all the other variables, except for subjective norms. The standard deviation for 'eco-literacy' was also higher than that of all the other variables, except for consumption of green products. The relatively lower mean and high standard deviation values indicate that a large proportion of respondents had relatively low-level of eco-literacy than that of the others. Subjective norms concerning green consumption also showed a relatively low mean and high standard deviation values, thus signifying that the social norms regarding green consumption may not be very clear among the low-income communities residing along then coastal Peninsular Malaysia. Lastly, the higher standard deviation value for consumption of green products indicated that the deviation in the level of green consumption was indeed high among the low-income communities in coastal Peninsular Malaysia.

The Cronbach's alpha (represents the conservative measure of internal consistency reliability) showed that all variables achieved a value of more than 0.85. This indicated that all the items were reliable. This study also adopted a different measure of internal consistency reliability, known as 'composite reliability'. The threshold value for composite reliability is 0.7 (Hair et al., 2011). As shown in Table 1, the composite reliability values for all constructs were higher than 0.9. This indicated that the items of all constructs were reliable. Moreover, the Dillon-Goldstein *rho* values for all constructs were higher than 0.9. This also confirmed the reliability of the items. To achieve convergent validity, the AVE value should be higher than 0.50. As depicted in Table 1, the AVE values for all constructs were higher than 0.7, which indicated acceptable convergent validity. Besides, the variance inflation factors (VIF) values for all variables were lower than 1.5. This implied that no multicollinearity issue was detected in this study.

As the Fornell–Larcker criterion was used to identify discriminant validity, the AVE for each indicator should be greater than the construct's highest squared correlation with another construct. As presented in Table 2, all constructs managed to meet this criterion. The Heterotrait–Monotrait Ratio (HTMT) is an estimate of the correlation between constructs, which is consistent with the disattenuated construct score. Based upon the threshold value of 0.9, this study concluded that there was no evidence of a lack of discriminant validity. Table 1 also shows that the AVI values for all variables were higher than 0.5. Next, Table 2 presents the loading and cross-loading values were higher than 0.7 (except for one of the items was higher than 0.65). This indicated that most indicators had stronger reliability. However, items with standardized loadings less than 0.7 were further analyzed. Finally (Table C, Appendix 3), describes that all loadings were higher than the total cross-loadings. It indicated that all indicators confirmed the discriminant validity.

4.3. Path analysis

First and foremost, the coefficient value for the effect of eco-literacy on attitude towards green products (Hypothesis 1) was 0.235 with the *p*-value of 0.000 (less than 5% significance level) (see Table 3). This finding indicated that eco-literacy had a positive effect on attitude towards green products. However, the f^2 value of 0.069 indicated a small effect of eco-literacy on attitude towards green products. Secondly, the coefficient value for the effect of self-efficacy on attitude towards green products (Hypothesis 2) was 0.361 with the *p*-value of 0.000 (less than 5% level of significance). This finding indicated that self-efficacy had a positive effect on attitude towards green products. The standardized regression coefficients indicated that self-efficacy had a higher effect on attitude towards green products than eco-literacy. Moreover, the f^2 value of 0.162 indicated a moderate effect of self-efficacy on attitude towards green products, which was higher than eco-literacy. The r^2 value indicated that 20.5% of the variation in attitude towards green products was explained by both eco-literacy and self-efficacy. Then, the Q^2 value of 0.163 indicated that both eco-literacy and self-efficacy had a medium predictive relevance for attitude towards green products.

Thirdly, the coefficient value for the effect of attitude towards green products on intention towards green products (Hypothesis 3) was 0.329 with the *p*-value of 0.000 (less than 5% significance level). This finding indicated that attitude towards green products had a positive effect on the intention towards green products. The f^2 value of 0.152 noted a moderate effect of attitude towards green products on the intention towards green products. The coefficient value for the effect of subjective norms on intention towards green products (Hypothesis 4) was 0.056 with the *p*-value of 0.131 (more than 5% significance level). This finding indicated that subjective norms did not have a significant effect on intention towards green products. Moreover, the f^2 value of 0.005 indicated a nearly zero effect of subjective norms on intention towards green products. The coefficient value for the effect of PBC on intention towards green products (Hypothesis 5) was 0.407 with the *p*-value of 0.000 (less than 5% level of significance). This finding indicated that PBC had a positive effect on the intention towards green products. The standardized regression coefficients also indicated that PBC had a higher effect on intention towards green products, followed by attitude towards green products and subjective norms. Moreover, the f^2 value of 0.219 indicated a moderate effect of PBC on intention towards green products, which was higher than attitude towards green products and subjective norms. The r^2 value implied that 40.6% of the variation in intention towards green products was explained by the attitude towards green products, subjective norms, and PBC. Finally, the Q^2 value of 0.328 showed that attitude towards green products, subjective norms and PBC had a medium predictive relevance for intention towards green products.

Last but not least, the coefficient value for the effect of PBC on consumption of green products (Hypothesis 6) was 0.332 with the *p*-value of 0.000 (less than 5% significance level). This finding indicated that PBC had a positive effect on consumption of green products. The f^2 value of 0.110 indicated a small effect of PBC on the consumption of green products. The coefficient value for the effect of intention towards green products on the consumption of green products (Hypothesis 7) was 0.301 with the *p*-value of 0.000 (less than 5% significance level). The finding indicated that intention towards green products had a

Table 2
Discriminant validity.
Source: Author's data analysis

	Fornell-Larcker Criterion							Heterotrait-Monotrait Ratio (HTMT)					
	EL	SE	ATE	SUN	PBC	IEFP	CEFP	EL	SE	ATE	SUN	PBC	IEFP
EL	0.968							–					
SE	0.114	0.938						0.117	–				
ATE	0.276	0.388	0.930					0.285	0.403	–			
SUN	0.609	0.023	0.199	0.879				0.622	0.051	0.198	–		
PBC	0.397	0.311	0.402	0.310	0.931			0.407	0.321	0.415	0.322	–	
IEFP	0.324	0.372	0.504	0.248	0.557	0.933		0.330	0.386	0.519	0.245	0.572	–
CEFP	0.116	0.248	0.324	0.067	0.500	0.486	0.912	0.118	0.258	0.335	0.077	0.513	0.499

Note: EL: Eco-Literacy; SE: Self-Efficacy; ATE: Attitude towards Green Products; SUN: Subjective Norms; PBC: Perceived Behavioral Control; IEFP: Intention towards Green Products; CEFP: Consumption of Green Products.

Table 3
Path coefficients.
Source: Author's data analysis

Hypo		Beta	CI - Min	CI - Max	*t*	*p*	r^2	f^2	Q^2	Decision
Factors effecting Atitudes										
H_1	EL → ATE	0.235	0.166	0.304	5.541	0.000		0.069		Accept
H_2	SE → ATE	0.361	0.268	0.443	7.003	0.000	0.205	0.162	0.163	Accept
Factors effecting Intention towards Green Products										
H_3	ATE → IEFP	0.329	0.254	0.395	7.603	0.000		0.152		Accept
H_4	SUN → IEFP	0.056	−0.022	0.138	1.124	0.131	0.406	0.005	0.328	Reject
H_5	PBC → IEFP	0.407	0.317	0.491	7.633	0.000		0.219		Accept
Factors effecting Consumption of Green Products										
H_6	PBC → CEFP	0.332	0.253	0.409	6.883	0.000		0.110		Accept
H_7	IEFP → CEFP	0.301	0.214	0.391	5.606	0.000	0.312	0.091	0.239	Accept

		Beta	CI - Min	CI - Max	t	*p*	Decision
Mediating Effect of Atitudes							
H_{1M}	EL → ATE → IEFP	0.023	0.013	0.035	3.402	0.000	Mediation
H_{2M}	SE → ATE → IEFP	0.036	0.020	0.054	3.539	0.000	Mediation
Mediating Effect of Intention towards Green Products							
H_{3M}	ATE → IEFP → CEFP	0.099	0.065	0.136	4.540	0.000	Mediation
H_{4M}	SUN → IEFP → CEFP	0.017	−0.007	0.041	1.127	0.130	No Mediation
H_{5M}	PBC → IEFP → CEFP	0.123	0.078	0.172	4.372	0.000	Mediation

Note: EL: Eco-Literacy; SE: Self-Efficacy; ATE: Attitude towards Green Products; SUN: Subjective Norms; PBC: Perceived Behavioral Control; IEFP: Intention towards Green Products; CEFP: Consumption of Green Products.

positive effect on the consumption of green products. The standardized regression coefficients also indicated that PBC had a higher effect on the consumption of green products than the intention towards green products. Moreover, the f^2 value of 0.091 indicated a weak effect of intention towards green products on consumption of green products, which was lower than PBC. The r^2 value indicated that 31.2% of the variation in consumption of green products was explained by intention towards green products and PBC. Finally, the Q^2 value of 0.239 indicated that the intention towards green products and PBC had a medium predictive relevance for the consumption of green products.

4.4. Mediating effects

Regarding the mediating effects of attitude towards green products, subjective norms, PBC, and intention towards green products, this study presented an indirect effect coefficients, confidence intervals, and *p*-values. The finding revealed that eco-literacy (Hypothesis 1M) had a significant (*p*-values < 0.05) indirect effect on intention towards green products, which confirmed that attitude towards green products mediated the relationship between eco-literacy and intention towards green products. Besides, self-efficacy (Hypothesis 2M) had a positive (*p*-values < 0.05) indirect effect on intention towards green products, which confirms that attitude towards green products does mediates the relationship between self-efficacy and intention towards green products.

Furthermore, the finding revealed that attitude towards green products (Hypothesis 3M) had a positive (*p*-values < 0.05) indirect effect on consumption of green products. This confirmed that intention towards green products mediated the relationship between attitude towards green products and consumption of green products. In addition, subjective norms (Hypothesis 4M) did not have a significant (*p*-values > 0.05) indirect effect on consumption of green products. This confirmed that intention towards green products did not mediate the relationship between subjective norms and consumption of green products. Finally, PBC (Hypothesis 5M) revealed a positive (*p*-values < 0.05) indirect effect on consumption of green products. In other words, intention towards green products mediated the relationship between PBC and consumption of green products.

4.5. Importance performance matrix analysis

This study performed a post-hoc importance-performance matrix analysis (IPMA) using consumption of green products as the main outcome. Table 4 presents the total effect values (representing the

Table 4
Performance and total effects.
Source: Author's data analysis

Target Construct	Consumption of Green Products			Consumption of Green Products	
Variables	Total Effect	Performance		Total Effect	Performance
EL	0.03	56.64	SUN	0.02	53.96
SE	0.06	83.37	PBC	0.69	58.68
ATE	0.16	75.07	IEFP	0.45	64.52

Note: EL: Eco-Literacy; SE: Self-Efficacy; ATE: Attitude towards Green Products; SUN: Subjective Norms; PBC: Perceived Behavioral Control; IEFP: Intention towards Green Products.

importance score) and performance values (ranging from 0 ["lowest performance"] to 100 ["highest performance"]). The findings revealed that PBC, intention towards green products, and attitude towards green products were the most important factors of the consumption of green products.

4.6. Multi-group analysis

In the attempt to provide enhanced comprehension from both theoretical and practical perspectives, this study examined the model by using the multi-group analysis (PLS-MGA) approach. Among the antecedents, this study selected gender, age, and education subgroups. Nevertheless, the limited number of cases in some of the subgroups generated singular matrix error. Hence, only subgroups without any singular matrix error had been considered in the PLS-MGA. Table 5 presents the *p*-values for the variance in the path coefficients between the two groups. The results seem to indicate that the difference in the effect of intention towards green consumption on green consumption behavior among male and female respondents was statistically significant (at a 5% level of significance). The standardized regression coefficient for the male respondents was 0.40, which appeared to be higher than the coefficient value of 0.22 for female respondents. The effect of perceived behavioral control on green consumption behavior among the age group of 21–30 was significantly higher than that of other two groups; 31–40 and 41–50. Nonetheless, the *p*-values of 46 out of 49 associations exceeded 0.05, which pointed out lack of heterogeneity issue.

5. Discussion

Given the environmental issues have been getting severe, the environmental conditions of the consumers become demanding. Based on the finding, the hypothesis 3 was supported as attitude had a direct effect on the intention towards green consumption. Being said that, low-level income households were aware of the benefits of eco-friendly products when these products were used on a daily basis. Furthermore, the favorable attitude toward green products was mediated by the effect of eco-literacy and self-efficacy on the intention to purchase these products. This further supports hypothesis 1, 2, and 3 as personal judgment on the execution of green activity and the preservation of natural system was important to gain positive attitudes toward eco-friendly products among consumers. This finding was consistent with previous studies (Joshi and Rahman, 2015; Kim and Chung, 2011; Paul et al., 2016; Sharma and Dayal, 2016). It is essential to impart the environmental knowledge to the low-income households as they are more willing to spend on eco-friendly products. Besides, advertisements with educational elements of green products should be circulated. Since there are limited information on the eco-friendly products, it is likely to reduce their marketability and consumer confidence in the products. As a result, the environmental knowledge can ensure that the low-income households practice healthy consumption by making green purchases to avoid illnesses that influence their lifestyle.

Conversely, both hypothesis 4 and 4M were not supported (see Table 6). Subjective norms did not have significant effect on the intention to consume green products. In addition, the intention towards green consumption did not have mediation effect beginning with subjective norms and ending with green consumption behavior. This finding is supported by Paul et al. (2016), most studies indicated that subjective norms are crucial for the participants to engage in green behavior (Bamberg, 2003; Kim and Chung, 2011). Ajzen (1991) pointed out that the relationship between subjective norms and intentions was weak in the TPB. To connect with this study, low-income households perceived that the information they received from referents (parents, close friends) was not important to encourage the purchase of green products. Thus, consumers with self-persuasion ability can motivate themselves to become green users. It is crucial to identify the potential environmental threats caused by negligible actions, which are controllable if substantial amount of plausible and provoking messages are reached out to change their mindsets.

In addition, both hypothesis 5 and 6 were accepted. The result revealed PBC was a salient determinant of the intention and behavior towards the purchase of green products. The result also demonstrated that when the consumers are able to learn the competency in improving the environment quality, they strive for achieving desire outcome through efforts to solve environmental issues. This reaction is facilitated by the past experiences that improve the efficiency of performing certain behaviors. The strong influence of controllable belief on the intention and green consumerism signify that consumers can be sensitive to the effect of consumption patterns on the nature and society. They evaluate the benefits of green purchasing activities and consider how their efforts change the nature and society. Moreover, strategic product

Table 5
Multi-group analysis.
Source: Author(s) own compilation

	Male & Female (*p* value)	Age Groups 2 & 3 (*p* value)	Age Groups 3 & 4 (*p* value)	Age Groups 2 & 4 (*p* value)	Education Groups 2 & 3 (*p* value)	Education Groups 3 & 4 (*p* value)	Education Groups 2 & 4 (*p* value)
EL → ATE	0.993	0.490	0.123	0.114	0.685	0.496	0.628
SE → ATE	0.821	0.595	0.359	0.459	0.649	0.728	0.780
ATE → IEFP	0.721	0.876	0.158	0.546	0.457	0.443	0.430
SUN → IEFP	0.103	0.065	0.969	0.628	0.673	0.339	0.539
PBC → IEFP	0.203	0.145	0.640	0.182	0.820	0.514	0.738
PBC → CEFP	0.657	0.023	0.628	0.029	0.322	0.833	0.681
IEFP → CEFP	0.034	0.927	0.686	0.975	0.666	0.070	0.165

Notes: (1) EL: Eco-Literacy; SE: Self-Efficacy; ATE: Attitude towards Green Products; SUN: Subjective Norms; PBC: Perceived Behavioral Control; IEFP: Intention towards Green Products; CEFP: Consumption of Green Products.
(2) Age Group 2: 21–30 Years; Age Group 3: 31–40 Years; Age Group 4: 41–50 Years; Education Group 2: Primary School; Education Group 3: Secondary School; Education Group 4: STPM/Diploma.

Table 6
Hypothesis's and decisions.

No.	Hypothesis	Decision
H_1	Eco-literacy has a positive effect on attitude towards EFP's among low-income households in Costal Peninsular Malaysia	Accept
H_2	Self-efficacy has a positive effect on attitude towards EFP's among low-income households in Costal Peninsular Malaysia	Accept
H_3	Attitude EFP's has a positive effect on intention towards EFP's among low-income households in Costal Peninsular Malaysia	Accept
H_4	Subjective norms has a positive effect on the intention towards EFP's among low-income households in Coastal Peninsular Malaysia	Reject
H_5	PBC has a positive effect on the intention towards EFP's among low-income households in Coastal Peninsular Malaysia	Accept
H_6	PBC has a positive effect on consumption of EFP's among low-income households in Coastal Peninsular Malaysia	Accept
H_7	Intention towards EFP's has a positive effect on the consumption of EFP's among low-income households in Coastal Peninsular Malaysia	Accept
H_{1M}	Attitude towards EFP's mediates the effect of eco-literacy on the intention towards EFP's among low-income households in Coastal Peninsular Malaysia	Mediation
H_{2M}	Attitude towards EFP's mediates the effect of environmental concern on the intention towards EFP's among low-income households in Coastal Peninsular Malaysia	Mediation
H_{3M}	Intention towards EFP's mediates the effect of attitude towards EFP's on the consumption of EFP's among low-income households in Coastal Peninsular Malaysia	Mediation
H_{4M}	Intention towards EFP's mediates the effect of subjective norms on the consumption of EPF's among low-income households in Coastal P. Malaysia	No Mediation
H_{5M}	Intention towards EFP's mediates the effect of PBC on the consumption of EFP's among low-income households in Coastal Peninsular Malaysia	Mediation

Note: EPF: Environmentally Friendly Products, **Source:** Author's data analysis.

placement enables consumers to support environmental sustainability (Yan and Yazdanifard, 2014). The availability of these products allow the low-income households to reduce global warming. In a nutshell, product values maximization, especially toward eco-certification, can be an alternative to generate the purchase. This is because augmented perceived value of the products can increase the functional benefits that consumers can obtain (Steenkamp and Geyskens, 2006). Thus, low-income households can achieve their resolve as they understand that consumption of green products minimizes the environmental degradation.

Furthermore, action should be highlighted by the government to enhance the perception of low-income households on environmental and social value. Most importantly, the acceptance of green consumerism is the key to addressing climate change issues. To raise the awareness of environmental vulnerability, some preventive approaches can be taken. First and foremost, fixed penalty notice can be given to discontinue constant wastage. For instance, Moser and Dilling (2004) ascertained that the manipulation of self-accusation is important to raise environmental responsibility. With considerate amount of warning and cautions from government, the households will be more knowledgeable in owning eco-friendly products. Therefore, policymakers have to take stern action in policy implementation to ensure that individuals have the intention to perform green behavior. Secondly, green development and corporate social responsibility are crucial for the mass market when efficient resources are done, subsequently reducing the cost of making green products, which make it more affordable for the low-income households.

6. Conclusion

Undoubtedly, the natural resource management, environmental movement, and climate change impact assessment are important to minimize the negative consequences of natural disaster. However, the cost of environmental damage can be substantial if the policy implementation and business planning are poorly done. Thus, this study focused on the psychology of low-income households in coastal Peninsular Malaysia, specifically their intention to buy green products. Drawing upon the TPB, this study also looked into the intentions and behaviors toward green consumption among low-income households. Both attitude and PBC were influential determinants of green consumption.

Next, this study contributed to the strategic thrust on Section 9 (ST9), one of the principles on Section 4 (P4) under the National Climate Change Policy by the Ministry of Natural Resources and Environment (2010). The cognitive behavior towards green consumerism can facilitate the policy to accomplish one of its objectives, particularly mainstreaming climate change for life quality improvement and escalating competitiveness in the economy. This objective is attainable by raising awareness and participation of the communities to promote green behavior to those who are unfamiliar with the environmental issues or not supportive of green activities. This study provides a useful guideline for the policymakers to fulfil the consumers' preference by encouraging them to purchase eco-friendly products. In actual fact, this study provides a picture of idiosyncratic beliefs that influences the intention to make green purchase. Moreover, it also further aids the communities to research the attributes of green products that engross the low-income households to consume them. When the communities get to know about the demand of green products, their quality of life will be further enhanced. Then, the effect of green consumption behavior on environmental vulnerability can be measured more accurately among low-income households.

In terms of practical implications, the findings provided insights into green consumption intention and behavior, which are expected to contribute to both the environment and the economy. These study outcomes can be used as reference by scholars and policymakers towards addressing both environmental and economic vulnerabilities among the low-income households. The findings seem to emphasize that relevant organizations should assess the feasibility of green products and develop an effective supportive system that can facilitate and promote green consumption among the low-income households. The relevant authorities should also adopt policies and measures to enhance environmental knowledge, self-efficacy, and attitude towards Green products so as to enhance green consumption behavior. The manufacturer and the suppliers of green products also must begin enhancing environmental knowledge among the low-income households. The availability of green products and the ability to visualize the benefits of green consumption among the coastal communities can significantly improve green consumption among the low-income households in coastal Peninsular Malaysia.

Although the causes of intention and behavior toward green consumption were identified, some of the questions were unanswered. This study demonstrated the influence of primary factors on green consumption behavior (Ajzen, 1991), specifically how green consumption behaviors were affected by external factors or barriers to ascertain the underlying phenomenon. For instance, pro-environmental behaviors (Whitmarsh and O'Neill, 2010), governmental support, green products availability (Zhao et al., 2014) and other barriers such as price of green products (Sriram and Forman, 1993) and lack of retrievable information (Young et al., 2010) can be incorporated into the future study to explore the issues. When the TPB model was extended, the policymakers and scholars can rely on the findings to determine the intentions and behaviors towards green consumption among low-income households. Since most studies focused on the general public cognition instead of the massive income group, low-income households in coastal

areas were selected as samples of this study. However, it is challenging to understand how green products benefit (Bottom 40%) income group in coastal areas. In response to these limitations, future studies can look at the response from middle-income (Middle 40%) or top-income (Top 20%) households to green purchase to allow subsequent implementation to be taken for achieving climate-resilient development in Malaysia. Moreover, the focus of this study was entirely on the effect of intention towards green products upon behavior towards green products, but this study dismissed the measure of intention-behavior gap, as well as the reasons. Nevertheless, based on the observation, as well as the formal and informal communications that took place during data collection, the researchers verified that it was highly likely that the low-income households in Coastal Peninsular Malaysia consumed green products if the products were available, as the cost of green products was not relatively higher than that of the non-green products substitute. Hence, future studies should focus on in-depth understanding pertaining to the intention-behavior gap of green consumption among the low-income households.

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Appendix 1. Survey Instrument

Table A
Survey Instrument.
Source: Author's data analysis

Code	Questions	Sources
	Eco-Literacy (1. Strongly Disagree to 5. Strongly Agree)	
EL – 1	Your friends think you should practice environmentally friendly behavior	Maichum et al. (2016) and Mostafa (2006)
EL – 2	You value the opinion and feeling of your family on your environmentally friendly behavior	
EL – 3	You value the opinion and feeling of your friends on your environmentally friendly behavior	
EL – 4	Your family think you should purchase environmentally friendly products	
	Self-Efficacy (1. Strongly Disagree to 5. Strongly Agree)	
SE – 1	You understand how to accomplish your tasks with minimum damage to the environment.	Qader and Zainuddin (2011)
SE – 2	If you are faced with an environmental problem, you usually search for solutions.	
SE – 3	You are confident in leading an environmentally friendly lifestyle	
SE – 4	You are confident in making an environmentally friendly choice whenever possible	
	Attitude towards Green Products (1. Strongly Disagree to 5. Strongly Agree)	
ATE – 1	Between environmentally friendly and conventional products, you prefer EF one	Ha and Janda (2012) and Maichum et al. (2016)
ATE – 2	Using environmentally friendly products is necessary to mitigate global warming	
ATE – 3	You think that purchasing an environmentally friendly products is favorable	
ATE – 4	You think that purchasing environmentally friendly products is a good idea	
ATE – 5	You think that purchasing environmentally friendly products are safe	
	Subjective Norms (1. Strongly Disagree to 5. Strongly Agree)	
SUN – 1	You accept and carry on out environmental activity even though it is not how you are.	Wu and Chen (2014) and Maichum et al. (2016)
SUN – 2	You feel bad if you choose to buy conventional products instead of EFP.	
SUN – 3	Everyone has a responsibility to contribute to environmental preservation by purchasing EFP	
SUN – 4	Most people who are important to you would wish that you are environmentally friendly	
SUN – 5	Most people who are important to you think that you should absolutely purchase EFP	
	Perceived Behavioral Control (1. Strongly Disagree to 5. Strongly Agree)	

(*continued on next page*)

Table A (*continued*)

Code	Questions	Sources
PCB – 1	You see yourself as capable of purchasing environmentally friendly products in future	Maichum et al. (2016)
PCB – 2	You have resources to purchase environmentally friendly products	
PCB – 3	You have time to search and purchase environmentally friendly products	
PCB – 4	You have willingness to purchase environmentally friendly products	
PCB – 5	There are likely to be plenty of opportunities for you to purchase EFPs	
PCB – 6	Being environmentally friendly would be entirely within your control.	
	Intention towards Green Products (1. Strongly Disagree to 7. Strongly Agree)	
IEFP – 1	You would buy EFPs even if the performance is same as the conventional products	Ha and Janda (2012) and Afroz et al. (2015)
IEFP – 2	You would buy environmentally friendly products even if it has a less-appealing design	
IEFP – 3	The probability that you will buy the environmentally friendly products is very high	
IEFP – 4	When you replace any household appliance, you plan to purchase EFPs.	
IEFP – 5	You intend to purchase EFPs next time because of its positive environmental contribution	
IEFP – 6	You plan to purchase more EFPs rather than conventional products	
IEFP – 7	You intend to practice environmental friendly consumption	
	Consumption of Green Products (1. Strongly Disagree to 7. Strongly Agree)	
CEFP – 1	You intentionally avoid the purchase of plastic products for environmental reasons	Walton and Austin (2011); Sánchez et al. (2015); Osman et al. (2014)
CEFP – 2	You intentionally avoid purchasing products with unnecessary packaging	
CEFP – 3	Intentionally purchase products manufactured/grown in an environmentally friendly manner	
CEFP – 4	You buy eco-labelled products i.e. non-polluting products	
CEFP – 5	You look for products packed in reusable containers (glass jars, etc.)	
CEFP – 6	You use low-energy appliances	
CEFP – 7	You use energy-saving light bulbs at home	

Note: (1) EFP: Environmentally Friendly Products; (2) The Italic values in the matrix above are the item loadings and others are cross-loadings.

Appendix 2. Demographic Characteristics of the Respondents

Table B
Profile of the Respondent.
Source: Author(s) own compilation

	n	%		n	%
Gender			*Education*		
Male	191	50.3	Never attended school	39	10.3
Female	189	49.7	Primary School	64	16.8
Total	380	100.0	Secondary school	196	51.6
			STPM/Diploma	54	14.2
Age			Undergraduate	25	6.6
Below 20	8	2.1	Masters degree	2	.5
20 years old-30 years old	87	22.9	Total	380	100.0
31 years old-40 years old	88	23.2			
41 years old-50 years old	88	23.2	*Marital Status*		
51 years old-60 years old	75	19.7	Married	264	69.5
61 years old and above	34	8.9	Single	85	22.4
Total	380	100.0	Separated	2	.5
			Divorced	10	2.6

(*continued on next page*)

Table B (*continued*)

	n	%		n	%
Current Employment Status			Widowed	19	5.0
Employed/Self Employed	374	98.4	Total	380	100.0
Unemployed	6	1.6			
Total	380	100.0			

Appendix 3. Loadings and Cross-Loadings

Table C
Loadings and Cross-Loadings.
Source: Author's data analysis

Code	EL	SE	ATE	SUN	PBC	IEFP	CEFP
EL – 1	*0.959*	0.104	0.259	0.589	0.344	0.285	0.079
EL – 2	*0.973*	0.096	0.264	0.600	0.373	0.301	0.115
EL – 3	*0.976*	0.113	0.281	0.596	0.412	0.332	0.121
EL – 4	*0.964*	0.129	0.265	0.571	0.406	0.335	0.134
SE – 1	0.063	*0.882*	0.333	−0.003	0.210	0.337	0.162
SE – 2	0.112	*0.957*	0.361	0.020	0.310	0.352	0.235
SE – 3	0.128	*0.962*	0.380	0.036	0.319	0.372	0.251
SE – 4	0.121	*0.947*	0.377	0.031	0.319	0.336	0.277
ATE – 1	0.219	0.414	*0.846*	0.144	0.441	0.491	0.378
ATE – 2	0.276	0.344	*0.937*	0.195	0.372	0.458	0.290
ATE – 3	0.264	0.347	*0.950*	0.198	0.351	0.463	0.288
ATE – 4	0.259	0.330	*0.955*	0.186	0.347	0.452	0.268
ATE – 5	0.266	0.359	*0.958*	0.204	0.349	0.472	0.273
SUN – 1	0.327	−0.073	−0.018	*0.675*	0.193	0.082	0.081
SUN – 2	0.521	0.022	0.195	*0.874*	0.264	0.209	0.078
SUN – 3	0.609	0.012	0.204	*0.911*	0.274	0.236	0.061
SUN – 4	0.575	0.030	0.192	*0.953*	0.303	0.240	0.050
SUN – 5	0.570	0.050	0.199	*0.952*	0.307	0.257	0.051
PCB – 1	0.423	0.290	0.409	0.314	*0.905*	0.510	0.451
PCB – 2	0.353	0.291	0.341	0.261	*0.920*	0.488	0.423
PCB – 3	0.352	0.274	0.354	0.264	*0.939*	0.514	0.455
PCB – 4	0.376	0.316	0.414	0.304	*0.951*	0.556	0.491
PCB – 5	0.361	0.260	0.358	0.299	*0.944*	0.531	0.496
PCB – 6	0.352	0.304	0.365	0.285	*0.923*	0.505	0.469
IEFP – 1	0.272	0.319	0.417	0.221	0.518	*0.925*	0.471
IEFP – 2	0.195	0.304	0.394	0.180	0.497	*0.869*	0.470
IEFP – 3	0.309	0.370	0.472	0.235	0.550	*0.955*	0.459
IEFP – 4	0.308	0.348	0.470	0.215	0.490	*0.945*	0.416
IEFP – 5	0.339	0.366	0.516	0.261	0.540	*0.955*	0.460
IEFP – 6	0.343	0.371	0.511	0.248	0.536	*0.954*	0.448
IEFP – 7	0.342	0.348	0.504	0.254	0.501	*0.924*	0.449
CEFP – 1	0.079	0.266	0.281	0.054	0.396	0.409	*0.881*
CEFP – 2	0.118	0.236	0.285	0.046	0.437	0.421	*0.907*
CEFP – 3	0.129	0.220	0.288	0.064	0.500	0.484	*0.931*
CEFP – 4	0.098	0.220	0.300	0.056	0.490	0.462	*0.934*
CEFP – 5	0.130	0.229	0.320	0.083	0.488	0.497	*0.943*
CEFP – 6	0.075	0.195	0.289	0.065	0.444	0.418	*0.918*
CEFP – 7	0.105	0.227	0.305	0.058	0.422	0.397	*0.869*

Note: The Italic values in the matrix above are the item loadings and others are cross-loadings.

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